

# PROCEDURE FOR STARTING UP A FUEL CELL USING A FUEL PURGE

## Abstract of the Disclosure

5        A vacuum fuel cell system (10) and procedure provide  
for starting up a fuel cell (12) with a rapid fuel purge  
of an anode flow field (38) to minimize corrosion of a  
carbon catalyst support layer (26) by a reverse current  
mechanism produced by movement of a fuel-air front  
10 through the anode flow field (38). A vacuum source (90)  
applies a vacuum to the anode flow field (38) while the  
fuel cell (12) is shut down and while a fuel inlet valve  
(70) and a fuel exhaust valve (74) are closed. The  
resulting vacuum within the anode flow field (38)  
15 produces rapid purge of the fuel through the anode flow  
field (38) upon start up, and a strong vacuum will get  
rid of essentially all of the air within the anode flow  
field (38) to virtually eliminate movement of the fuel-  
air front.